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more complete:—since you have done me the honour of addressing the Society of which you are President, on the subject of my researches.

It could not, of course, be otherwise than honourable & gratifying to me, if the Literary and Philosophical Society of Liverpool should think fit, on your recommendation, to elect me a Corresponding Member. I do not know, however, that with the present claims upon my time, I have anything to promise in return.

Should you have mentioned the subject to any of the resident members, I hope that you will tell them that, through some accident, I did not hear of your intention till the day before yesterday.

I remain

my dear Sir

very truly yours

WILLIAM ROWAN HAMILTON

Rev. JAMES BOOTH, LL.D.

QUESTIONS AND DISCUSSIONS.

EDITED BY C. F. GUMMER, Queen's University, Kingston, Ont., Canada.

NEW QUESTION.

The following question should call forth some interesting answers, whether complete or not, from readers having a taste for constructive geometry.

46. A geometrical construction will often become impracticable in special cases where some of the construction points are imaginary, although the final result is real. Is there any system according to which a construction failing in this way may be replaced by one that will work?

For example, let a line l_1 cut a circle c_1 in P_1 and Q_1 , and let a line l_2 cut a circle c_2 in P_2 and Q_2 . If the four points P_1 , Q_1 , P_2 , and Q_2 are real, the intersections of P_1P_2 with Q_1Q_2 and P_1Q_2 with P_2Q_1 may be found directly. If the four points are imaginary, the intersections named will still be real, and there ought to be a simple way of getting them as the points common to a line and a circle.

DISCUSSIONS.

In PROBLEM-NOTES (1921, 278) a problem in Skeleton Division, proposed by Professor F. Schuh, was quoted from *Nieuw Tijdschrift voor Wiskunde*, volume 8.

Professor Curtiss shows that this problem has the unique solution 7752341/667334. In Professor Bennett's "Remarks" it is shown that the same conclusion is reached without the assumption of irreducibility. Solutions of a number of puzzles of this kind by W. E. H. Berwick may be found in *The Mathematical Gazette*, January, 1922, pages 8 and 9. In all of these certain digits were given beforehand, and in several cases there is more than one solution. For other references see Note 2, in Problems and Solutions (1921, 37).

Mr. Ballantine develops some ideas on linear systems of functions with a view to generalizing the notion of derivative. Considering a Taylor expansion as a linear combination of the successive powers of the variable, he discusses some ways in which a linear combination of a more general sequence of functions may be regarded as a generalized Taylor expansion.